UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

LITTELFUSE, INC.,	*	
	*	
Plaintiff,	*	
	*	
v.	*	Civil Action No. 1:17-cv-12375-IT
	*	
MERSEN USA NEWBURYPORT-MA, LLC,	*	
	*	
	*	
Defendant.	*	

MEMORANDUM & ORDER

September 30, 2024

TALWANI, D.J.

Plaintiff Littelfuse, Inc. ("Littelfuse") alleges that fuses made and sold by Defendant Mersen USA Newburyport-MA, LLC ("Mersen") infringe Littelfuse's Patent No. 9,564,281 ("the '281 patent"). Am. Compl. [Doc. No. 7]. At a hearing on Mersen's Motion for Summary Judgment of No Infringement and No Willfulness [Doc. No. 178], the court orally denied the motion without prejudice as to no infringement (with this written memorandum to follow), and took the motion as to no willfulness under advisement. For the reasons set forth below, the Motion [Doc. No. 178] is DENIED without prejudice as to no infringement and GRANTED as to no willfulness.

I. Background[1]

A. *The Parties*

Littelfuse is a technology manufacturing company with expertise in circuit protection, power control, and sensing platforms. Am. Compl. ¶ 1, 7 [Doc. No. 7]. Mersen is a technology

[1] Unless otherwise indicated, the facts recited are taken from Littelfuse's Response to Mersen's

manufacturer with expertise in electrical components. Mersen's Statement of Undisputed Material Facts ("Resp. to SUMF") ¶ 3 [Doc. No. 189-1].

B. Events Prior to the Issuance of the Patent (Prosecution History and Mersen's Monitoring of the Patent Application)

In March 2013, three inventors filed patent application US 13/851,296 (eventually issued as the '281 Patent) to be assigned to Littelfuse. See '281 Patent [1-1] at 1; Patent App. [Doc. No. 46-5]. In June 2015, the patent office issued an Office Action Summary, stating under the heading "Election/Restrictions" that the application "contains claims directed to the following patentably distinct species: Specie I, Fig. 2A, 2B, with a machined fuse end cap; Specie II, Fig. 3A, 3B, with a stamped fuse end cap; and, Specie III, Fig. 4A, 4B, with an assembled fuse end cap comprising a fastening stem." Restriction Requirement (06-02-2015) [Doc. No. 46-3]. The patent office required the applicants "to elect a single disclosed species, or a single grouping of patentably indistinct species, for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 1 and 10 are generic." Id.

Later in June 2015, the applicants "elect[ed] **Species III** without traverse for prosecution on the merits." Resp. to Restriction Requirement [Doc. No. 46-4]. The applicants stated further that "claims 7 and 18 encompass the elected species[,]" and identified "claims 1-7 and 10-18 for further prosecution in response to the outstanding Restriction Requirement." Id. In July 2015, in a non-final action, the patent office treated claims 8, 9, 19, and 20 as withdrawn from consideration, and rejected the remaining claims in part as anticipated by another inventor's disclosure. First Non-Final Action [Doc. No. 46-6]. In October 2015, the applicants responded by amending both

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Statement of Undisputed Material Facts ("Resp. to SUMF") [Doc. No. 189-1] and either are not in dispute or are viewed in the light most favorable to Littelfuse (the non-moving party) for purposes of summary judgment.

claims 1 and 10 to add "a fastening stem that extends from the mounting cuff and into the second cavity of the terminal that receives the conductor." Resp. to First Non-Final Action [Doc. No. 46-7]. The applicant withdrew claim 8, "[t]he fuse end cap of claim 1, wherein the mounting cuff and the terminal are machined from a single, contiguous piece of conductive material," and claim 9, "[t]he fuse end cap of claim 1, wherein the mounting cuff and the terminal are stamped from a single, contiguous piece of conductive material." Id. As to the anticipated disclosure by another inventor, the applicants distinguished the other invention as "devoid of a fastening stem that extends from the mounting cuff and into the second cavity of the terminal that receives the conductor." Id. On December 24, 2015, the patent office issued a "final action" rejecting the non-withdrawn claims. See Second Non-Final Action 2 [Doc. No. 46-8].

On January 20, 2016, an employee at Mersen asked legal counsel to review a proposed Mersen product to compete with a different manufacturer's in-line, crimpable fuse products on the market and Littelfuse's application US 13/851,296. Resp. to SUMF ¶ 37 [Doc. No. 189-1]. On January 27, 2016, a Mersen employee received a letter from counsel attaching various documents from the prosecution file history, including the December 24, 2015 final action. Opinion Letter [Doc. No. 179-11]. Counsel explained "that a reasonable interpretation of claims 1 and 10, as presently amended, would require a *two-piece* end cap structure. Therefore, we conclude that the current pending (non-withdrawn) claims of the US '296 application should not be interpreted to read upon Mersen's proposed *one-piece* crimp terminal." Id. at 4. The letter also stated that counsel had reviewed the "fastening stem" described in the '296 application and observed that Mersen's proposed crimp terminal did not have a fastening stem. Id. Counsel noted that further prosecution could change their opinion and advised continued monitoring of the application. Id.

The Mersen employee then asked that legal counsel "commence monthly monitoring of the [Littelfuse] crimp cap application." Resp. to SUMF ¶ 41 [Doc. No. 189-1].

The applicants filed a request for continued examination in response to the patent office's December 24, 2015 final rejection on April 25, 2016. See Second Non-Final Office Action [Doc. No. 46-8]. The patent office again rejected the non-withdrawn claims, in part as anticipated, despite the addition of the fastening stem. Id. The applicants filed a further response in August 2016, with further amendments to claims 1 and 10, relating to the end of the fuse body being electrically insulating, but with claims 8 and 9 still withdrawn. See Attachments to Counsel Email (9/15/2016) [Doc. No. 179-13].

On September 15, 2016, Mersen's counsel advised the Mersen employee that they had continued to monitor the prosecution, and that Littelfuse had filed a "Response to Office Action" with the Patent Office amending independent claims 1 and 10. Id. Mersen's counsel opined that, while the scope of claims 1 and 10 had changed, Mersen's proposed crimp terminal did not come within the scope of the '296 application. Id.

C. The Issuance of the Patent

On February 7, 2017, the application was allowed as to all claims. See Prosecution History [Doc. No. 48-2]. The patent office found claims 1-7 and 10-18 allowable based on "the overall structure of the device as recited in the intendent apparatus claims 1 and 10." Id. at 13. The patent office found the August 2016 amendment, "in combination with all remaining limitations of said claims 1 and 10 . . . allowable over the prior art of record[.]" Id. The notice stated further, without discussion, that the previously withdrawn claims "require all the limitations of the aforementioned allowable claims," and accordingly were rejoined and allowed. Id.

Littelfuse was issued U.S. Patent 9,564,281 (the "'281 Patent") entitled "Fuse End Cap With Crimpable Terminal." Resp. to SUMF ¶ 17 [Doc. No. 189-1]. The '281 Patent is directed at creating a fuse end cap with a "crimpable terminal" for providing "a secure electrical connection between a conductor and a fuse." '281 Patent col. 1, 8-10 [Doc. No. 179-3]. The "fuse end cap" purports to avoid the need for prior methods for fuse connection, such as soldering and welding, by describing a fuse end cap that can be crimped. Id. at col. 1, 25-44.

As with the original application, the specifications describe three embodiments. Resp. to SUMF ¶ 21 [Doc. No. 189-1]. The parties agree that the embodiments of two of the figures (Fig. 2A, 2B, with a machined fuse end cap, and Fig. 3A, 3B, with a stamped fuse end cap) are outside of the scope of the asserted claims. Id. ¶ 22. The third embodiment, which "may be formed from two separate pieces," discloses a "fastening stem," labeled "465" in the figure below. Id. ¶ 29; '281 Patent 9 [Doc. No. 179-3]. The only mention in the specifications of a "fastening stem" is in the discussion of the third embodiment, illustrated in Fig. 4B.

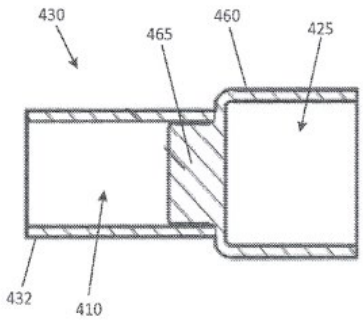

FIG. 4B

The '281 Patent has two independent claims, both of which require a "fastening stem." Id. ¶ 24, 27.

Claim 1 of the '281 Patent describes:

A fuse end cap comprising:

> a mounting cuff defining a first cavity that receives an end of a fuse body, the end of the fuse body being electrically insulating;
> a terminal defining a second cavity that receives a conductor, wherein the terminal is crimped about the conductor to retain the conductor within the second cavity;
> and **a fastening stem that extends from the mounting cuff and into the second cavity of the terminal that receives the conductor**.

Id. at col. 7, 30-41 (emphasis and underlining of disputed terms added).[2]

D. The Commencement of Litigation and Claim Construction

Littelfuse commenced this litigation in December 2017. Compl. [Doc. No. 1]. The operative complaint asserts that Mersen has been selling the Accused Products since at least 2016, and continuing to the present, and that the Accused Products infringe at least claim 1. Am. Compl. [Doc. No. 7].

In claim construction briefing, the parties agreed that "cavity" should be construed to mean an "empty or hollow space." Littelfuse's Submission of Proposed Claim Constructions of "Cavity" and "Terminal" 1 [Doc. No. 60] ("The parties agree that the term cavity should be construed to mean an 'empty or hollow space.'"); Mersen's Supp. Claim Construction Brief 1

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[2] Claim 10 is relevant to the parties' dispute insofar as it includes fuse end caps as described in claim 1 but poses no independent problem. Claim 10 describes:

> A fuse assembly comprising:
> a first fuse end cap having a mounting cuff defining a first cavity and a terminal defining a second cavity;
> a fastening stem that extends from the mounting cuff of the first fuse end cap and into the second cavity of the terminal;
> a second fuse end cap having a mounting cuff defining a first cavity and a terminal defining a second cavity, and a fastening stem that extends from the mounting cuff of the second fuse end cap and into the second cavity of the terminal;
> a fuse having a fuse body with a first end mounted within the first cavity of the first fuse end cap and a second end mounted within the first cavity of the second fuse end cap, wherein the first end of the fuse body and the second end of the fuse body are electrically insulating;
> a first conductor . . . and
> a second conductor . . . .

Id. at col. 8, 1-27.

[Doc. No. 59] ("Mersen believes that the parties agree that the term cavity means - an empty or hollow space.").

The court subsequently construed "fuse end cap" to mean a "conductive cap that covers the end of a fuse," and construed "a mounting cuff defining a first cavity that receives an end of a fuse body, the end of the fuse body being electrically insulating" to mean "a cuff with a cavity in which the insulating end of a fuse body is mounted securely, such as by friction, adhesives or mechanical fasteners." Mem. & Order 19-20 [Doc. No. 67].

As to the term "fastening stem," Littelfuse proposed that "fastening" and "stem" "should be given [their] plain and ordinary meaning," with examples of "fastening" being "joining, affixing, or securing," and an example of a stem as "something suggestive of a plant stem, such as the part of a tobacco pipe from the bowl outward or the cylindrical support of a wine glass." Littelfuse's Claim Construction, Prehearing Statement, and Response to Mersen's Statement on Claim Construction 2-3 [Doc. No. 42]. Mersen proposed that the term "fastening" be construed as "[a]n adjective that describes the purpose of the fastening stem to be causing attachment," and "stem" as the "[s]tructure on the mounting cuff shaped like a plant stem." Mersen's Statement on Claim Construction 2-3 [Doc. No. 43]. The court noted that both parties suggested that "'stem' should be construed along the lines of something shaped like a plant stem," Mem. & Order 15 [Doc. No. 67], but ultimately focused on the dispute over "fastening" without separately defining the term "stem." The court construed "fastening stem" as "a stem that attaches or joins other components" and "a fastening stem that extends from the mounting cuff and into the second cavity of the terminal that receives the conductor" as "a stem that extends from the mounting cuff and into the second cavity of the terminal that receives the conductor, and attaches the mounting cuff to the terminal." Id. at 19.

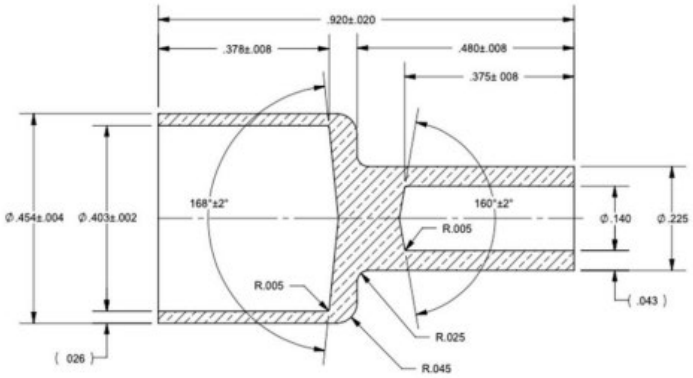
Implicit in the court's construction was the determination that the fuse cap in claim 1 did not include a single-piece embodiment. On appeal, the Federal Circuit noted that "[t]he district court reasonably found that the plain language of the claims suggests that the 'fastening stem' is a stem that 'attaches or joins.'" Littelfuse, Inc. v. Mersen USA EP Corp., 29 F.4th 1376, 1381 (Fed. Cir. 2022). The Federal Circuit disagreed that claims 1 and 10 cover only a multi-piece apparatus, however, and concluded instead that claims 1 and 10 also cover a single-piece apparatus. Id. Accordingly, the Federal Circuit vacated the judgment and the court's order as to the construction of the terms "fastening stem" and "fastening stem that extends from the mounting cuff and into the second cavity of the terminal that receives the conductor," id. at 1382, and remanded the case "for the district court to adopt a new construction of the 'fastening stem' limitations that allows for the independent claims to cover both single-piece and multi-piece embodiments." Id. at 1381.

Following a second Markman hearing, the court again construed the term "fastening stem" as "a stem that attaches or joins other components." Mem. and Order 7 [Doc. No. 156]. In so doing, the court rejected Littelfuse's argument that "join" should be construed as analogous to an intersection, finding "Littelfuse's construction would write the word 'fastening' out of the claim, and ignores the Federal Circuit's direction that the feature must perform a 'fastening function of some sort.'" Id. at 9. The court amended its construction of "fastening stem that extends from the mounting cuff and into the second cavity of the terminal that receives the conductor" to "a fastening stem that extends from the mounting cuff and into the second cavity of the terminal that receives the conductor and attaches or joins the mounting cuff to the terminal or to the conductor." Id. at 12-13.[3]

[3] At the summary judgment hearing, the parties agreed that the drawing, below, of a hypothetical fuse design with a single-piece construction satisfied every limitation recited in the claim as

E. The Allegedly Infringing Products

Mersen manufacturers and sells fuses for use in solar power installations, some of which include crimpable end caps.[4] Resp. to SUMF ¶¶ 4-5 [Doc. No. 189-1]. At least three of those fuse types have or had a single-piece end cap design (the "First Generation" design), shown below, which Littelfuse alleges reads on the '281 Patent.[5]



Drawings (MER-002000), Ex. D at 12 [Doc. No. 179-5].

Mersen asserts that it transitioned its First Generation design to a different single-piece design (the "Second Generation" end cap design), pictured below, in October 2022, and that the Second Generation design would be implemented for the allegedly infringing lines of fuses.

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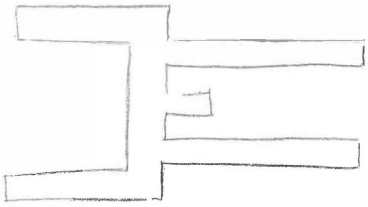
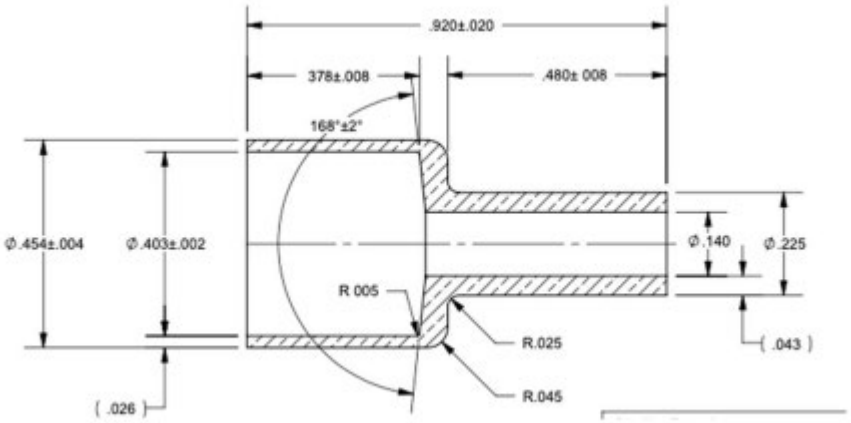
delineated in the Federal Circuit's opinion and the court's second claim construction.



[4] Mersen's fuse lines include its HP10MxxCC, HP15MxxRCC, HP15GxxCC, and HP15PxxCC designs. Resp. to SUMF ¶ 4 [Doc. No. 189-1]. The HP10MxxCC, HP15MxxRCC, HP15GxxCC, and HP15PxxCC fuses have crimpable end caps. Id. ¶ 5.

[5] The HP10MxxCC line of fuses had, and the HP15MxxRCC and HP15GxxCC line of fuses (together, the "M/G-type" fuses) have the First Generation design. Id. ¶¶ 6-8.



Mersen's Statement of Undisputed Facts ISO its Mot. for Summ. J. ("Def.'s SUMF") ¶ 9 [Doc. No. 181]. Mersen contends that the allegedly infringing fuses now have the Second Generation design, which is non-infringing. Id. ¶¶ 10-14. Littelfuse agrees that, on paper, the Second Generation design does not have a fastening stem, but disputes that the design has been implemented in commercial versions of HP10MxxCC, HP15MxxRCC, or HP15GxxCC. Response to SUMF ¶¶ 9-14, 20 [Doc. No. 189-1].

On July 8, 2022, Mersen provided Littelfuse with engineering drawings of the Second Generation end cap. Id. ¶ 15. Mersen also provided Littelfuse with samples of one line of fuses that it had transitioned to the Second Generation design on May 2, 2023. Id. ¶ 16. Per Littelfuse, Mersen has not provided samples with the Second Generation end cap design of other allegedly infringing lines. Id.[6]

On September 30, 2022, Mersen amended its Answer and Counterclaim to Littelfuse's Complaint to seek declaratory judgment of non-infringement as to both the First and Second Generation designs. First Amended Answer to First Amended Complaint, Affirmative Defenses

[6] Specifically, Littelfuse has received samples of the HP15PxxCC line of fuses with the Second Generation fuse end cap design and has not seen samples of the HP10MxxCC, HP15MxxRCC, or HP15GxxCC lines. Resp. to SUMF ¶ 16 [Doc. No. 189-1].

and Counterclaim ¶¶ 34-38 [Doc. No. 130]. As to the Second Generation design, Mersen alleged that Littelfuse refused to confirm that it would not assert the '281 Patent against the Second Generation design and that, given that refusal, "the non-infringement of the [Second Generation] design is justiciable." Id. ¶ 38. In its answer to the counterclaim, Littelfuse did not admit that there was an actual and justiciable controversy between the parties as to the Second Generation design, see Littelfuse's Answer to Mersen's Amended Counterclaim ¶ 41 [Doc. No. 134], and asserted that it told Mersen it would not base an infringement accusation on a drawing but "if the end caps as manufactured do not contain a stem, we will not accuse them of infringing," id. ¶ 35.

II. Legal Standard

When reviewing a motion for summary judgment, the court must take all properly supported evidence in the light most favorable to the non-movant and draw all reasonable inferences in the non-movant's favor. Griggs-Ryan v. Smith, 904 F.2d 112, 115 (1st Cir. 1990). "Credibility determinations, the weighing of evidence, and the drawing of legitimate inferences from the facts are jury functions, not those of a judge . . . ruling on a motion for summary judgment[.]" Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255 (1986).

Under Rule 56 of the Federal Rules of Civil Procedure, summary judgment is appropriate when "the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). A fact is material when, under the governing substantive law, it could affect the outcome of the case. Anderson, 477 U.S. at 248; Baker v. St. Paul Travelers Ins. Co., 670 F.3d 119, 125 (1st Cir. 2012). A dispute is genuine if a reasonable jury could return a verdict for the non-moving party. Anderson, 477 U.S. at 248.

The moving party bears the initial burden of establishing the absence of a genuine dispute of material fact. Celotex Corp. v. Catrett, 477 U.S. 317, 323 (1986). This burden can be satisfied in two ways: (1) by submitting affirmative evidence that negates an essential element of the non-moving party's claim or (2) by demonstrating that the non-moving party failed to establish an essential element of its claim. Id. at 323-324. Once the moving party establishes the absence of a genuine dispute of material fact, the burden shifts to the non-moving party to set forth facts demonstrating that a genuine dispute of material fact remains. Id. at 322.

The admissibility of expert evidence is governed by Federal Rule of Evidence 702. Under Rule 702, a proponent of expert evidence must demonstrate that it is more likely than not that: (1) "the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;" (2) the expert's "testimony is based on sufficient facts or data;" (3) "the testimony is the product of reliable principles and methods;" and (4) "the expert's opinion reflects a reliable application of the principles and methods to the facts of the case." Fed. R. Evid. 702. The trial court acts in a "gatekeeping role," ensuring that expert testimony "both rests on a reliable foundation and is relevant to the task at hand." Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 597 (1993). "[I]n assessing whether the expert opinion has the requisite validation for purposes of Rule 702, a court may conclude that it does not because, given the record at hand, 'there is simply too great an analytical gap between the data and the opinion proffered.'" Rodríguez v. Hospital San Cristobal, 91 F.4th 59, 70-71 (1st Cir. 2024) (quoting Gen. Elec. Co. v. Joiner, 522 U.S. 136, 146 (1997)).

III. Discussion

Mersen moves for summary judgment of no infringement and no willfulness. Mot. for Summ. J. [Doc. No. 178]; Mersen's Mem. ISO its Mot. for Summ. J. of No Infringement and

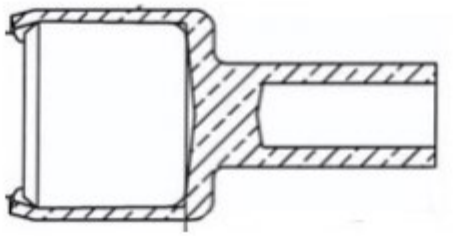
No Willfulness ("Def.'s Mem.") 1-4. The court addresses each argument in turn.

A. Summary Judgment as to Noninfringement

Patent infringement is a two-step process that first requires construing the patent, or claim construction, a question of law to be determined by the court, and then determining whether infringement occurred, a question of fact, to be submitted to the jury. Markman v. Westview Instr., Inc., 517 U.S. 370, 384 (1996). "Literal infringement of a claim exists when every limitation recited in the claim is found in the accused device, i.e., when the properly construed claim reads on the accused device exactly." Cole v. Kimberly-Clark Corp., 102 F.3d 524, 532 (Fed. Cir. 1996). Summary judgment of non-infringement may only be granted if one or more limitations of the claim in question do not read on an element of the accused product. See Searfoss v. Pioneer Consol. Corp., 374 F.3d 1142, 1148 (Fed. Cir. 2004); see also TechSearch, L.L.C. v. Intel Corp., 286 F.3d 1360, 1369 (Fed. Cir. 2002) ("Summary judgment of noninfringement is . . . appropriate where the patent owner's proof is deficient in meeting an essential part of the legal standard for infringement, because such failure will render all other facts immaterial.") Thus, summary judgment of non-infringement can be granted only if, viewing the facts in the light most favorable to the patentholder, there is no genuine issue as to whether the accused product is covered by the claims as they have been construed by the court. See Pitney Bowes, Inc., v. Hewlett-Packard Co., 182 F.3d 1298, 1304 (Fed. Cir. 1999).

i. The Parties' Arguments

The relevant portion of an engineering drawing of the allegedly infringing fuse cap, without either party's annotations, is pictured below.



Mersen contends that its accused fuse end caps do not infringe Littelfuse's patent because the accused fuse end caps do not have a "fastening stem" that extends into the cavity of the terminal and performs a fastening function. Def.'s Mem. 1-2 [Doc. No. 180]. Mersen argues that a "fastening stem" "must be a distinct element, [] must resemble a stem, [] must fasten, and [] must stick out into a cavity." Id. at 5. In Mersen's view, no reasonable jury could find that Mersen's First Generation end cap design includes a "fastening stem."[7]

Littelfuse counters that there is a genuine dispute of material fact as to what a "fastening stem" in a single-piece embodiment looks like, and that Mersen's argument for summary judgment rehashes its argument that a single-piece embodiment cannot have a fastening stem—an argument the Federal Circuit has rejected. Littelfuse's Opp. to Mersen's Mot. for Summ. J. ("Pl.'s Opp.") 1 [Doc. No. 187-1]. Littelfuse offers a version of the engineering drawing that its expert, Dr. Charles F. Reinholtz, has marked in color and contends, based on that drawing, that

[7] As set forth above, the parties dispute whether Mersen has transitioned its commercial products that used the First Generation design to the Second Generation design. Whether Mersen has done so may be relevant in determining damages if the First Generation end caps are found at trial to infringe, but the dispute is not material to the question of whether the Accused Products (which are limited to First Generation end caps) do or do not infringe Littelfuse's patent.

To the extent that Mersen seeks the court's finding that the Second Generation design products do not infringe Littelfuse's patent, there appears to be no dispute requiring resolution where Littelfuse concedes that the Second Generation product does not include a "fastening stem." Pl.'s Opp. 4 [Doc. No. 187-1].

the question of infringement should be put to a jury.[8]

The parties' briefing (and Littelfuse's colored drawing) raises claim construction issues, however, that must be addressed and resolved before the court considers whether there is a genuine dispute of material fact to present to the jury as to whether every limitation recited in the claim is found in the accused device.

ii. *Construction of the Term "Cavity"*

As noted above, in claim construction briefing, the parties agreed that cavity should be construed to mean an "empty or hollow space." As Mersen has summarized,

> Littelfuse argued that the specification supports the construction of cavity as an empty or hollow space because it provides that "The mounting cuffs 134a and 134b may have respective cavities 136a and 136b formed in the inwardly-facing sides thereof . . . ." Littelfuse also argued, correctly, that the "construction of "cavity" as an empty or hollow space is further compelled by each cavity's function." Finally, Littelfuse argued that construing the term cavity as an empty or hollow space would be consistent with rulings of other United States District Courts.

Mersen's Reply Mem. ISO its Mot. for Summ. J. of No Infringement ("Reply Mem.") 6-7 [Doc. No. 196] (internal citations omitted). Mersen points out further that in In re Turn-Key-Tech Matters, 2002 WL 34454498, at *4 (C.D. Cal. Jan. 18, 2002), a case on which Littelfuse relies, the district court construed a cavity as a hollow space and "declin[ed] to construe 'cavity' to include the cavity walls which actually form the hollow space." Reply Mem. at 7.

Littelfuse now offers Dr. Reinholtz's opinion that the second cavity "is the volume enclosed by the terminal. Thus, the cavity is the cylindrical volume defined by the inner diameter of the terminal, stretching from the opening of the terminal to the plane at which the

[8] Littelfuse also points to the design of the Second Generation end cap and suggests that the empty cavity in the Second Generation design clarifies the existence of a "fastening stem" in the First Generation design. Pl.'s Opp. 4 [Doc. No. 180].

terminal meets the mounting cuff." Decl. of Dr. Charles F. Reinholtz, Ph.D., in Opp. to Mersen's Mot. for Summ. J. ("Reinholtz Decl.") ¶ 94 [Doc. No. 188-18].

The court finds this opinion as to the second cavity inadmissible for three reasons. First, Dr. Reinholtz's construction of the term "cavity" is conclusory, is not based on facts or data, is not the product of reliable principles and methods, and does not reflect a reliable application of the principles and methods to the facts of the case. See Fed. R. Evid. 702. Second, Littelfuse is judicially estopped from offering a different definition of "cavity" in light of its prior position. And third, the construction of claim terms is a question of law "exclusively within the province of the court." Markman, 517 U.S. at 372.

To avoid any dispute going forward, the court construes the term "cavity" as an "empty or hollow space," where this previously agreed-upon construction follows from the language of the claims and from the specifications and is not rebutted by the patent prosecution history or extrinsic evidence.

iii. *Construction of the Term "Stem"*

As noted above, while both parties previously suggested that "'stem' should be construed along the lines of something shaped like a plant stem," the court focused on the dispute over "fastening" and did not separately construe the term "stem." Mem. & Order 15-16 [Doc. No. 67]. Littelfuse's expert's efforts to identify a "stem" by simply coloring a portion of a drawing, see e.g., Reinholtz Decl. ¶ 101 [Doc. No. 188-18], makes clear that construction of the term "stem" is required. Accordingly, the court has requested further briefing by the parties as to the construction of the term "stem."

Given the court's determination that further claim construction is necessary as to "stem," the question of infringement is not ripe for resolution. Accordingly, Mersen's Motion for

Summary Judgment [Doc. No. 178] as to non-infringement is denied without prejudice. Following claim construction, Mersen may file a renewed motion for summary judgment as to infringement or move for reconsideration of this order.

B. Summary Judgment as to Willfulness

Mersen also seeks summary judgment on the question of whether its alleged infringement was willful. Def's Mem. 19 [Doc. No. 180]. Mersen contends that there is no evidence on which a reasonable juror could find that it willfully infringed Littelfuse's patent. Id. Specifically, Mersen notes that it relied on the opinion of counsel while originally developing its First Generation end cap design. Id. Mersen also argues that after the case was remanded from the Federal Circuit, Mersen developed and adopted its Second Generation end cap, which the parties agree is non-infringing.

Littelfuse responds that a jury could conclude from evidence in the record that Mersen's alleged infringement was willful. Littelfuse contends that Mersen's business records demonstrate that Mersen copied Littelfuse's products with the intent of poaching its market share, despite knowing that the products were patented. Pl.'s Opp. 10 [Doc. No. 187-1]. Littelfuse further argues that Mersen's advice of counsel defense should be submitted to the jury for its consideration. Id. at 11. Additionally, Littelfuse notes that, though Mersen maintains that it has transitioned its commercial products to the Second Generation type fuses, no reliable evidence of such a transition has been produced. Id. at 10.

Under 35 U.S.C. § 284, a court may award enhanced damages for willful infringement up to three times the damage amount found or assessed. "[T]he concept of 'willfulness' requires a jury to find no more than deliberate or intentional infringement." SRI International, Inc. v. Cisco Sys., Inc., 14 F.4th 1323, 1330 (Fed. Cir. 2021). The party seeking to establish willfulness, in this

case Littelfuse, bears the burden of proof by a preponderance of the evidence to "show the accused infringer had a specific intent to infringe at the time of the challenged conduct." Bayer Healthcare LLC v. Baxalta Inc., 989 F.3d 964, 987 (Fed. Cir. 2021) (citing Halo Elecs., Inc. v. Pulse Elecs., Inc., 579 U.S. 93, 105 (2016)).

i. Record Evidence of Mersen's Knowledge of Littelfuse's Patent

Littelfuse argues that there is evidence of Mersen's intent to infringe in the record. Pl.'s Opp. 10-11 [Doc. No. 187-1]. Littelfuse points to a slide deck prepared by Mersen employee Matt Sawyer in December 2015 titled "10mm Crimp Cap Project," Pl.'s Opp., Ex. 4 (10mm Crim Cap Project Presentation) [Doc. No. 188-4], which stated that Mersen was looking to develop a crimp camp for inline fuses because "Phoenix Contact is looking for a 2nd supplier beside Littelfuse." Id. at 3. Later, a slide titled "Market Opportunity" includes a bullet point for "Competition," followed by "Technology is already offered by Littelfuse & Bussman." Id. at 5. Littelfuse also points to emails between Mersen employees noting that Littelfuse had a pending patent on a crimp cap fuse design, Pl.'s Opp., Ex. 5 (August 12 Email) [Doc. No. 188-5]; asking for quotes of various Littelfuse fuses, id., Ex. 6 (October 7 Email) [Doc. No. 188-6]; acknowledging that Littelfuse manufactured a similar product and might have a patent, id., Ex. 7 (Phoenix Contact fuse details) [Doc. No. 188-7]; and recognizing that Littelfuse was having difficulty with fuse delivery and Mersen should seek an alternative production source to fill that market gap. Id., Ex. 8 (Feb. 3 2017 Email) [Doc. No. 188-8]. Littelfuse also points to a technical background description of a Phoenix Contact product, at the bottom of which someone from Mersen wrote: "Obstacle: Littelfuse has probably claimed a patent on that kind of connection cap . . . if worldwide [patent], we have to find a different solution – not to injure the patent." Ex. 7 (Phoenix Contact technical background) [Doc. No. 188-7].

The evidence does show that Mersen sought to compete with products that Littelfuse and another company were selling and that it was aware of Littelfuse's product. But though Littelfuse suggests that this adds up to bad faith on Mersen's part for an intent to "poach[] Littelfuse's market share," Pl.'s Opp. 10 [Doc. No. 187-1], competitive behavior is not itself equivalent to willful patent infringement. That Mersen sought market share through its own design does not show that it was seeking to do so by infringing Littelfuse's patent.

ii. Reliance on the Opinion Letter and the Letter's Reliability in Light of the Patent Prosecution History

Mersen contends that opinion letters by counsel can be "powerful evidence" that an accused infringer was not intentionally infringing. Def.'s Mem. 12 (citing Halo Elec., Inc. v. Pulse Elecs., Inc., 281 F.Supp.3d 1087, 1091 (D. Nev. 2017)) [Doc. No. 180]. While opinion letters are not necessarily dispositive, in this case they do undermine Littelfuse's efforts to show Mersen's purported intent to infringe.

From the initial stages of Mersen's First Generation fuse development project, the undisputed evidence shows that Mersen monitored Littelfuse's patent application. In a January 2016 email from Jerry Mosesian, a senior engineer at Mersen and the lead engineer on the crimp cap fuse project, to Michael Jaffe, the attorney who ultimately authored the opinion letter at issue here, Mosesian wrote: "We have just started a development project to offer a crimp terminal . . . Subsequently we learned that Littelfuse also has similar designs as well as the attached patent application." Ex. K (January 20, 2016 Mosesian Email) [Doc. No. 179-10]. Mosesian then asked Jaffe to "review the attached [Littelfuse] application and advise if our concept is problematic." Id.

A week later, Jaffe sent Mosesian an opinion letter titled "Patent Review for Proposed Crimp Terminal." Ex. J (Opinion Letter) [Doc. No. 179-11]. The letter reviewed the '296 Patent

application's prosecution history and claims, and concluded:

> It is noted that the current pending independent claims 1 and 10 do not *explicitly* define the "end cap" as being a *two-piece* end cap. However, we believe this two-piece structure is implied in claims 1 and 10 . . . In view of the foregoing, we believe that a reasonable interpretation of claims 1 and 10, as presently amended, would require a *two-piece* end cap structure. Therefore, we conclude that the current pending (non-withdrawn) claims of the US '296 application should not be interpreted to read upon Mersen's proposed *one-piece* crimp terminal.

Id. at 4.

Following receipt of the letter, Mosesian wrote back to Jaffe that Mersen intended to go forward with its design, but that Mersen wanted to monitor the '296 application for further prosecution. Ex. M (January 27 Mosesian Email) [Doc. No. 179-12]. Jaffe agreed that monitoring was a good idea and Mosesian asked that Jaffe "commence monthly monitoring of the [Littelfuse] crimp cap application." Id.

When further prosecution occurred and Littelfuse amended claims 1 and 10 of the '296 application, Jaffe alerted Mosesian to the activity and wrote: "While the scope of the claims has been changed by the present amendment, we do not believe that the amendments to independent claims 1 and 10 change our opinion . . . that Mersen's proposed crimp terminal does not come within the scope of the claims of [the '296 application]." Ex. N (Sept. 15, 2016 Jaffe Email) [Doc. No. 179-13].

Littelfuse argues first that Mersen has not established that the letter was reliable and competent. Pl.'s Opp. 13 [Doc. No. 187]. Specifically, Littelfuse contends that Mosesian's testimony that the opinion letter's conclusion that the Patent had an "implied requirement" of a two-piece structure "probably" gave him pause suggests that the opinion letter was unreliable. Further, Littelfuse contends that "if Jaffe testifies, Littelfuse would be entitled to cross Mr. Jaffe with the Court's actual construction, which demonstrates that the only basis for his opinion was

wrong." Id. [Doc. No. 187-1] at 14.

None of this suggests that the opinion letter was unreliable. The letter considered Mersen's proposed design and the prosecution history of the '296 application, specifically with regard to the embodiments in figures 4A and 4B, and analyzed the then pending claims as not precluding Mersen's proposed single-piece design. The opinion letter also noted that its analysis applied only to the non-withdrawn claims of the patent application, and that further prosecution of the '296 application might require additional review.

"[C]ounsel's opinion must be thorough enough, as combined with other factors, to instill a belief in the infringer that a court might reasonably hold the patent is invalid, not infringed, or unenforceable." Ortho Pharmaceutical Corp. v. Smith, 959 F.2d 936, 944 (Fed. Cir. 1992). The Jaffe opinion letter clears this bar. Notably, at the time it was issued, Littelfuse had withdrawn claim 8 ("the fuse end cap of claim 1, wherein the mounting cuff and the terminal are machined from a single, contiguous piece of conductive material") and claim 9 ("the fuse end cap of claim 1, wherein the mounting cuff and the terminal are stamped from a single, contiguous piece of conductive material"). While the patent office subsequently concluded that the previously withdrawn claims "require all the limitations" of the allowable claims and rejoined the claims, Littelfuse was making no claim prior to this litigation on a fuse end cap made from a single, contiguous piece of metal. And where neither Littelfuse nor the patent office offered any explanation at the time the previously withdrawn claims were rejoined as to how a single piece embodiment required all the limitations of the allowable claims, Littelfuse is unable to show Mersen's wrongful intent, even though Mersen's (and this court's) construction of Littelfuse's patent was ultimately rejected by the Federal Circuit.

Littelfuse also contends that Mersen has failed to establish that any decisionmaker at

Mersen actually relied on the opinion letter in deciding whether to modify or go forward with the First Generation end cap design. It argues that "Mersen must establish both that the opinion is reliable, and that it actually relied on the opinion when making the decision to offer the accused product." Pl.'s Opp. 12 [Doc. No. 187]. Littelfuse goes so far as to argue that "Mersen's lack of evidence on an essential element of its defense counsels for exclusion of the opinion altogether." Id. [Doc. No. 187-1] at 13.

But Littelfuse either overlooks or obscures testimony by Mosesian that he communicated the content of Jaffe's opinion letter up the chain of command at Mersen, undermining Littelfuse's contention that no decisionmaker at Mersen relied on the letter. Moreover, while Littelfuse reports that Vadim Radunsky testified that "he first saw the opinion the day before his December 6, 2023, deposition," id. at 12, this is misleading. Radunsky testified that he first *saw* the opinion letter the day before his deposition, but when asked "[w]ould you have seen [the letter] in January of 2016," Radunsky responded "No. I heard of it." Ex. 9 at 140:1-9 (Radunsky Depo. Tr.) [Doc. No. 188-9]. He went on to say that he believed it was prepared for Mosesian, "one of our senior engineers who was the lead engineer in developing the fuses with crimp caps." Id. at 140:12-20.

Mosesian testified, as Littelfuse excerpts, that the person who made the decision to proceed in reliance on Mr. Jaffe's opinion was "way above [him]". Ex. O at 281:12-30 [Doc. No. 179-14]. But he also testified that the feedback from the opinion letter impacted the direction of the product's development by giving him "the assurance that what was being at that point a feasibility study was not going to be an infringement." Id. at 25:4-11. He further testified that his determination to go forward with the proposed product with regard to potential infringement "relie[d] exclusively on Mr. Jaffe's analysis." Id. at 26:2-7. When asked who at

Mersen relied on Jaffe's opinion, generally, Mosesian answered: "Me for one . . . . And then I advised my boss, here is the letter, he reads it, he talks to his boss, here's the letter, he reads it. So there were a lot of people up the chain that would have probably seen Michael Jaffe's letter." Id. at 270:8-16.

Based on the record here, the court finds Littelfuse has failed to proffer evidence from which a jury could find more likely than not that any infringement by Mersen of the '281 Patent was willful. Mersen's Motion for Summary Judgment as to no willfulness is granted.

IV. Conclusion

For the foregoing reasons, Mersen's Motion for Summary Judgment of No Infringement and No Willfulness [Doc. No. 178] is DENIED without prejudice as to no infringement and GRANTED as to no willfulness.

IT IS SO ORDERED.

Date: September 30, 2024

/s/ Indira Talwani
United States District Judge